

229726



Chris.English@CH2M.com

01/25/2005 07:55 AM

To

Subject Sauget Area 2 - Weekly Oversight Report for the Week  
Ending January 21, 2005

Nabil and Sandy,

Please find attached a weekly report summarizing construction activities at Sauget Area 2, Site R, during the week ending January 21, 2005. Please let us know if you have any questions about this document.

<<SA2\_weekly\_report 01-21-05.pdf>>

Thanks,

***Chris***

*Chris English, P.E.*

*CH2M HILL*

*727 North First Street, Suite 400*

*St. Louis, MO 63102*

*Phone: (314) 421-0313 ext. 221*

*E-fax: (414) 454-8738*



Cell: (314) 749-1550 SA2\_weekly\_report 01-21-05.pdf

## **Weekly Summary Report**

### **USEPA Oversight, Sauget Area 2, Sauget, IL**

### **WA No. 224-RXBF-05XX / Contract No. 68-W6-0025**

**Week Ending Friday, January 21, 2005**

This report summarizes the Interim Remedial Action (IRA) work conducted by Solutia and its contractors from January 17, 2005 through January 21, 2005 at Site R, Sauget Area 2. Ongoing IRA fieldwork consists of rough grading of the site and stormwater management. Additional activities throughout the week consisted of redevelopment of piezometers associated with the Groundwater Migration Control System (GMCS).

## **Contractors Onsite**

Philip Services Corporation (PSC) (contractor for earthwork/stormwater management)  
Roberts Environmental Drilling Inc. (Roberts) (drilling contractor for redeveloping piezometers)  
URS (primary consultant for Solutia)

## **Work Performed This Week**

Site activities included a resumption of site grading activities, with a focus during the reporting period in the area near Extraction Well 2 (EW-2). Stormwater management continued, with handling of water ponded across the site from precipitation during prior reporting periods. Solutia redeveloped six of the eight GMCS piezometers during the week.

Barrier wall cap construction and slurry stabilization are expected to continue during the upcoming weeks as the site dries out from recent rainfall events.

## **Groundwater Migration Control System (GMCS)**

The river elevation steadily decreased during the week from 400.4 feet above mean sea level (amsl) on January 17, to 393.8 feet amsl on January 24. Correspondingly, the GMCS combined system flow rate increased during the week from zero gallons per minute (gpm) on January 17, to 800 gpm on January 24, with the centrally-located extraction well, EW-2, pumping at 750 gpm. Extraction wells EW-2 and EW-3 (south well) pumped at variable flow rates during the most of the week, whereas EW-1 (north pumping well) remained turned off during the majority of the reporting period. (Please see the note below on the change to the pumping system control algorithm which took effect on January 17/18, 2005.)

Eight barrier wall piezometers, with four inside and four outside the barrier wall alignment, monitored the groundwater elevations adjacent to the barrier wall alignment during the week. Due to the redevelopment of piezometers during the week, the transducers in each of the piezometers were removed for a period of time during the reporting period. Consequently, water elevations were not available for the entire reporting period at each piezometer. However, following redevelopment, new transducers were installed in each of the piezometers. Solutia anticipates that these new transducers will lead to more accurate and reliable measurements than were recorded with the older transducers. At the end of the week, the new transducers were installed in the P1, P2, and P3 piezometer pairs. Table 1 shows the river and piezometer water elevations measured at 9:00 AM on January 24, 2005.

### **Explanation of Gradient Terminology**

In the following paragraphs, the term “delta” refers to the gradient across the barrier wall as measured by the groundwater head difference at each piezometer pair, with one well located on each side of the wall. “Negative delta” values refer to an inward groundwater gradient, toward Site R, when water levels are observed to be lower in the piezometer located inside the barrier wall. Conversely, “positive delta” values refer to an outward groundwater gradient across the barrier wall, toward the river. Under positive delta conditions, the water level in the piezometer located inside the barrier wall is greater than the level in the piezometer on the outside (river side) of the wall.

### **ROD Performance Metrics (Gradient Across the Barrier Wall)**

During the reporting period, piezometer pairs P1, P3, and P4, maintained an inward groundwater gradient across the barrier wall, toward Site R, with a negative delta between approximately 0 and 3 feet. Piezometer pair P2 recorded water levels generally lower in the piezometer located inside the barrier wall, P2E, however an equivalent (zero delta) or slightly higher water levels in the inside piezometer (positive delta) were observed beginning on January 23.

### **FFS Performance Metrics (Gradient Between Inside Wall Piezometers and River)**

Throughout the reporting period the four piezometers located inside the barrier wall maintained groundwater elevations lower than the Mississippi River elevation, indicting an inward gradient toward Site R. The inside piezometers recorded water elevations varying between approximately 1 and 7 feet lower than the river level.

### **Control Changes to GMCS Algorithm**

During the reporting period, URS technicians switched the GMCS from operating on manual control to a newly programmed algorithm. The logic for control of the extraction well pumps in the algorithm was set approximately as follows:

- EW-1 flow rate controlled by delta at P1 piezometer pair
- EW-2 flow rate controlled by delta at P2 piezometer pair
- EW-3 flow rate controlled by delta at P4 piezometer pair
- Flow rate at each extraction well, when delta condition is between -0.5 and -1.5 feet (indicating inward groundwater gradient towards Site R at specific piezometer pair) will vary linearly based on value of delta.
  - Pumps will turn off at delta values less than -1.5 feet.
  - Pumps will remain at maximum flow rate at delta values greater than -0.5 feet, with a maximum flow rate of approximately 750 gpm per pump/extraction well.

### **Piezometer Redevelopment**

During the reporting period, Roberts, with oversight by URS, redeveloped six piezometers: P1 pair (P1S and P1N), P3 pair (P3E and P3W), and the piezometers located outside the barrier wall at P2 and P4 (P2W and P4W).

The piezometers were developed using air development methods and by purging large volumes of groundwater to remove particulate from the wells. Development started at the top of the well screen (approximately 50 to 60 feet below ground surface) and continued with groundwater

purged at each 10-foot interval until approximately total depth of the piezometer was encountered.

Bentonite slurry was not specifically observed in any of the piezometers during development, though significant amounts of fly ash were purged from some wells, including P1S. The groundwater purged at P2W was a yellow color and had a strong odor in comparison to groundwater from other piezometers. URS collected some composite samples of the sediment purged from the piezometers from within the tank used to contain the purged groundwater. These samples, though not specific to each piezometer, may be used for grain size or other analyses to be determined later.

**TABLE 1**  
River and Piezometer Water Elevations – January 24, 2005 (09:00 AM)

	<b>Elevation (ft above mean sea level)</b>
River Level	393.81
Piezometer 1S – inside wall (northern-most pair)	392.4
Piezometer 1N – outside wall (northern-most pair)	393.87
Piezometer 2E – inside wall (north-central pair)	392.69
Piezometer 2W – outside wall (north-central pair)	392.47
Piezometer 3E – inside wall (south-central pair)	392.32
Piezometer 3W – outside wall (south-central pair)	392.78
Piezometer 4E – inside wall (southern-most pair)	NA
Piezometer 4W – outside wall (southern-most pair)	NA

Note: Water levels at the P4 pair were unavailable due to the piezometer redevelopment.

### **Barrier Wall Cap Construction and Site Grading**

No new cap construction occurred during the current reporting period; approximately 75 linear feet of barrier wall cap remains to be constructed. Site grading resumed during the week between stations 18+00 and 21+00 near EW-2. The area was rough graded and cleaned of excessively wet spoil materials during the week, with the area surrounding the extraction well tapered east-west to provide for site drainage into the ditch lying west of the landfill.

### **Slurry**

No slurry stabilization operations occurred during the reporting period.

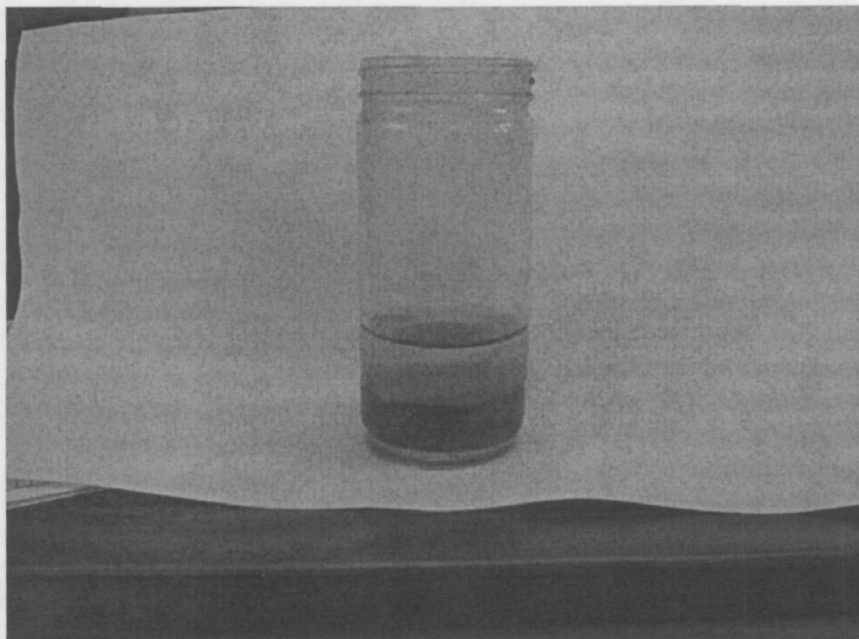
### **Stormwater**

Stormwater from rain events during the prior reporting period was pumped to the modutanks during the week. As necessary, stormwater was flocculated and discharged to the American Bottoms Regional Treatment Facility (ABRTF). Approximately 200,000 gallons of stormwater was transferred to ABRTF during the reporting period.

## Photos for the week ending January 21, 2005



Rough site grading and cleanup started near Extraction Well 2. (January 19, 2005)



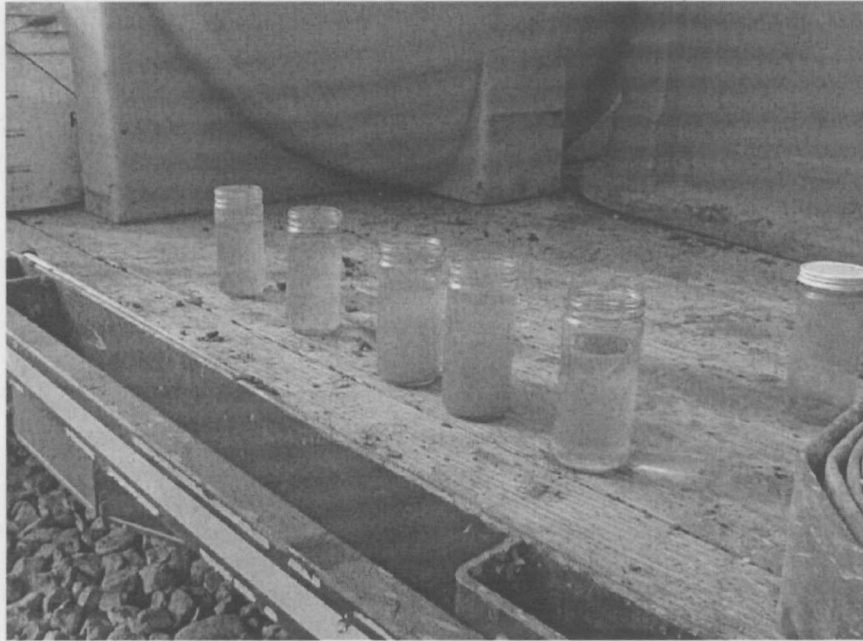
Particulate purged from piezometer P1S was determined to be flyash by URS due to the short amount of time (less than 5 minutes) taken for the particulate to settle in the water column. (January 17, 2005)



Development at piezometer P3W, located outside the barrier wall.  
(January 19, 2005)



Groundwater purged from piezometer P3E visibly improved in turbidity during development at one depth interval. (January 19, 2005)



Groundwater purged from piezometer P2W, located outside the barrier wall, varied in shaded of yellow with a strong odor. (January 20, 2005)



Purged groundwater from development was transferred to the modutanks for flocculation and subsequent transfer to ABRTF. (January 19, 2005)